

National Environmental Satellite, Data,
and Information Service (NESDIS)

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Operational Wind Products at NOAA/NESDIS

Presented to 16th International Winds Workshop

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NOAA | NESDIS:

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Outline

1. Status of NOAA GOES and POES Satellites
2. Operational GOES & POES AMV Products
3. Operational ASCAT OSW Products
4. Change on Operation and Product Generation
5. NOAA Satellite Products Dissemination & Access

Currently Flying



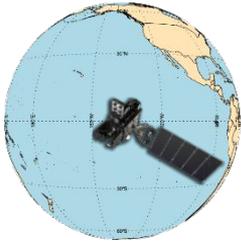
NOAA owns and operates **11** satellites:

- 5 geostationary (GOES-14, -15, -16, -17 and -18)
- 5 polar-orbiting (NOAA-15, -18, -19, -20, and -21)
- 1 deep space satellite (DSCOVR)

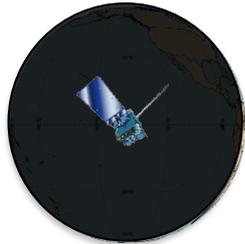


GOES Constellation

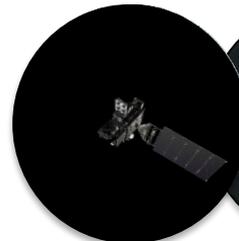
GOES-West
GOES-18
137.0° West



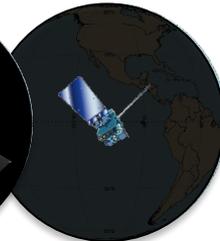
Storage
GOES-15
128° West



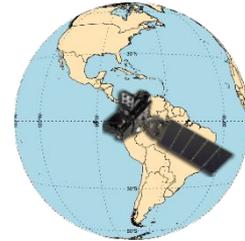
Standby
GOES-17
~105° West



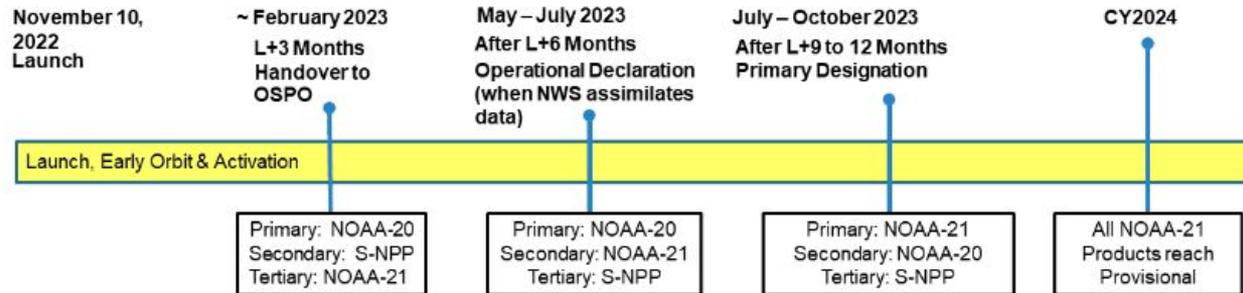
Storage
GOES-14
105° West



GOES-East
GOES-16
75.2° West



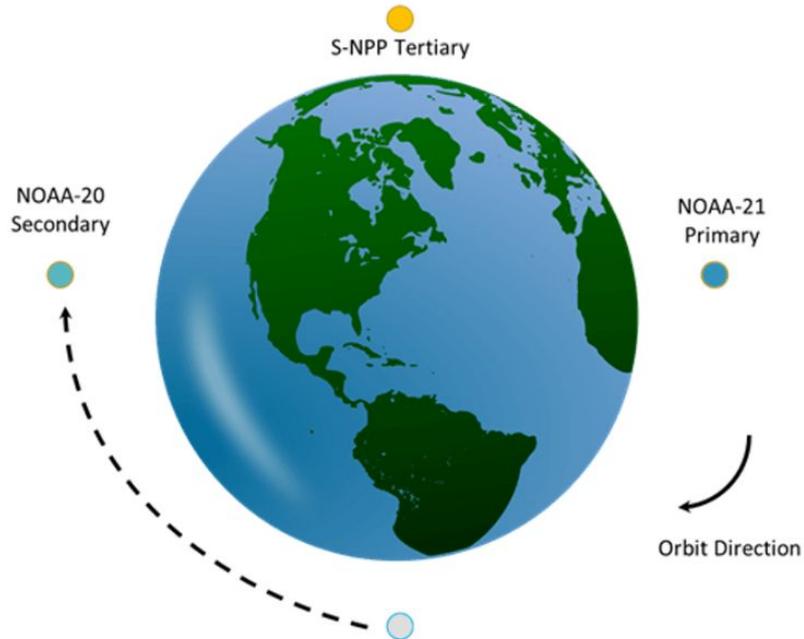
NOAA-21 Operational Transition Timeline



- NESDIS policy is to maintain on-orbit a primary and secondary source of microwave and infrared sounding and imaging/radiometry
- Latency and availability requirements apply to the primary mission sensors only

JPSS Operational Orbit Location

Operational Orbit Location (L+9-12 Months – Post Primary Transition)



- S-NPP and NOAA-20 will remain in their current orbit phase until designation of NOAA-21 as primary
- Once NOAA-21 is designated as primary, NOAA-20 will be migrated

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Operational AMV Products

- **GOES-16** and **GOES-18** AMV in NetCDF and BUFR
- **S-NPP** and **NOAA-20** VIIRS Polar Winds in NetCDF and BUFR
- **Metop-B** and **Metop-C** AVHRR Polar Winds in NetCDF and BUFR
- **AQUA** and **TERRA** MODIS Winds in BUFR
- **NOAA-15**, **NOAA-18**, and **NOAA-19** AVHRR Polar Winds in BUFR
- **Himawari-9** Winds in NetCDF (soon)



Operational AMVs Dissemination

- All operational AMV products are distributed via the Enterprise PDA (Product Distribution and Access) system at NOAA/NESDIS/OSPO
- The NOAA/NESDIS AMV products are also available on GTS



Operational AMV Products (1/6)

AMV Products	Frequency (min)	Image Sectors	Image Interval (min)	WMO Header
GOES-16 (GOES East)				
LWIR (11.2um) Cloud-drift	5	MESO	5	INGX71/INGX81
	15	CONUS	5	INGX61
	60	FULL DISK	10	INRX21
SWIR (3.9um) Cloud-drift	5	MESO	5	INGX72/INGX82
	15	CONUS	5	INGX62
	60	FULL DISK	10	INRX22
Visible (0.64um) Cloud-drift	5	MESO	5	INGX73/INGX83
	15	CONUS	5	INGX63
	60	FULL DISK	10	INRX23

Operational AMV Products (2/6)

AMV Products	Frequency (min)	Image Sectors	Image Interval (min)	WMO Header
GOES-16 (GOES East)				
Water Vapor-Cloud Top (6.2um)	5	MESO	5	INGX74/INGX84
	15	CONUS	5	INGX64
	60	FULL DISK	10	INRX24
Water Vapor-Clear Sky (6.2um)	5	MESO	30	INGX75/INGX85
	15	CONUS	30	INGX65
	60	FULL DISK	30	INRX25
Water Vapor-Clear Sky (6.9um)	5	MESO	30	INGX76/INGX86
	15	CONUS	30	INGX66
	60	FULL DISK	30	INRX26
Water Vapor-Clear Sky (7.3um)	5	MESO	30	INGX77/INGX87
	15	CONUS	30	INGX67
	60	FULL DISK	30	INRX27



Operational AMV Products (3/6)

AMV Products	Frequency (min)	Image Sectors	Image Interval (min)	WMO Header
GOES-18 (GOES West)				
LWIR (11.2um) Cloud-drift	5	MESO	5	INFX71/INFX81
	15	CONUS	5	INFX61
	60	FULL DISK	10	INLX21
SWIR (3.9um) Cloud-drift	5	MESO	5	INFX72/INFX82
	15	CONUS	5	INFX62
	60	FULL DISK	10	INLX22
Visible (0.64um) Cloud-drift	5	MESO	5	INFX73/INFX83
	15	CONUS	5	INFX63
	60	FULL DISK	10	INLX23



Operational AMV Products (4/6)

AMV Products	Frequency (min)	Image Sectors	Image Interval (min)	WMO Header
GOES-18 (GOES West)				
Water Vapor-Cloud Top (6.2um)	5	MESO	5	INFX74/INFX84
	15	CONUS	5	INFX64
	60	FULL DISK	10	INLX24
Water Vapor-Clear Sky (6.2um)	5	MESO	30	INFX75/INFX85
	15	CONUS	30	INFX65
	60	FULL DISK	30	INLX25
Water Vapor-Clear Sky (6.9um)	5	MESO	30	INFX76/INFX86
	15	CONUS	30	INFX66
	60	FULL DISK	30	INLX26
Water Vapor-Clear Sky (7.3um)	5	MESO	30	INFX77/INFX87
	15	CONUS	30	INFX67
	60	FULL DISK	30	INLX27



Operational AMV Products (5/6)

AMV Products	Frequency (min)	Image Sectors	Image Interval (min)	WMO Header
AQUA/TERRA MODIS				
LWIR (11um) Cloud-drift	100	NHEM/SHEM (poleward 65°)	100	JBCX11 (TERRA) JICX11 (AQUA)
Water Vapor (6.7um)	100	NHEM/SHEM (poleward 65°)	100	JLCX11 (AQUA)
AVHRR				
LWIR Cloud-drift	100	NHEM/SHEM (poleward 65°)	100	JCVX98 (Metop-B) JCVX95(N19) JCVX94(N18) JCVX91(N15)



Operational AMV Products (6/6)

AMV Products	Frequency (min)	Image Sectors	Image Interval (min)	WMO Header
S-NPP VIIRS				
LWIR (10.76um) Cloud-drift	100	NHEM/SHEM (poleward 65°)	100	INNX21
NOAA-20 VIIRS				
LWIR (10.76um) Cloud-drift	100	NHEM/SHEM (poleward 65°)	100	INOX21



Updates on Operational AMVs

- Metop-B and Metop-C AVHRR Polar Winds (Enterprise version) have been available since Mar., 2022
- Legacy Metop-B AVHRR Polar Winds were retired in Oct. 2022
- Enterprise version of Cloud and Winds for **GOES-16** and **GOES-18** will be available for test during **Jul. 3-Aug. 7** (via PDA I&T)
- **S-NPP** and **NOAA-20** VIIRS Polar Winds (Enterprise version) will replace current operational one **in the mid of June**
- **NOAA-21** VIIRS Polar Winds will reach provisional in **Jan., 2024**



Retirement of Operational AMVs

- **AQUA and TERRA MODIS Polar Winds on Dec., 2023**
- **NOAA-15, NOAA-18, and NOAA-19 AVHRR Polar Winds on Mar., 2024**



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Operational ASCAT OSW Products

- Metop-B and C 25km and 50km Ocean Surface Winds in NetCDF, BUFR, and BINARY
- Metop-B and C Ultra High Resolution Winds Imagery for Tropical Storms in NetCDF and GIF

Operational ASCAT OSW Dissemination

- ASCAT OSW products are distributed by Enterprise PDA
- Main NOAA users include:
 - National Hurricane Center (NHC)/Tropical Prediction Center (TPC)
 - Ocean Prediction Center
 - Alaska and Pacific Regions
 - Coastal Weather Forecast Offices
 - Great Lakes Weather Forecast Offices
 - Environmental Modeling Center (EMC)



Update on SCATEROMETER OSW

- Developing the OSW products from OCEANSAT-3
- Operational Date is expected to be in the early 2024



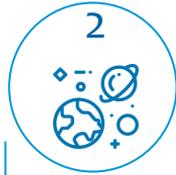
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Strategic Objectives



1
Advance terrestrial observational leadership in geostationary and extended orbits



2
Lead and execute Space Weather observational leadership in LEO, GEO, and extended orbits



3
Evolve LEO architecture to enterprise system of systems that exploits and deploys new observational capabilities



4
Develop agile & scalable ground capability to improve efficiency of service deliverables and ingest of data from all sources

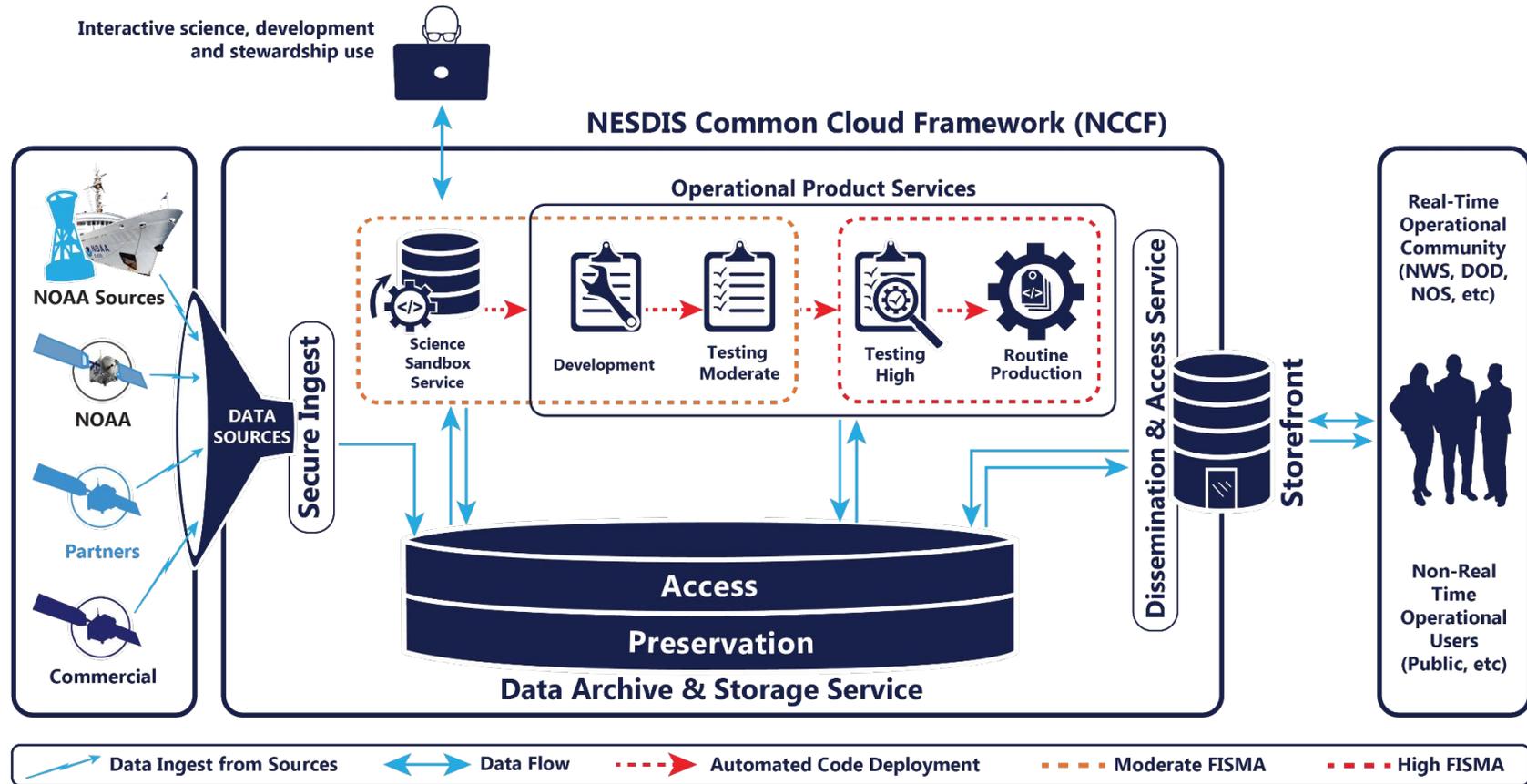


5
Provide consistent ongoing enterprise-wide user engagement to ensure timely response to user needs



6
Deliver integrated program development to provide a suite of products and services

NESDIS Ground Enterprise in the Cloud



NCCF Compute (Product Generation) Service

PI2 PI3 PI4 PI5 PI6 PI7 PI8 PI9 PI10 PI11 PI12 PI13 PI14 PI15 PI16 PI17 PI18 PI19 PI20 PI21 PI22 PI23 PI24 PI25 PI26 PI27 PI28 PI29

2021	2022	2023	2024	2025	2026	2027
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Initial Operation
Product Generation
with H8

Optimization to support multiple
parallel migration effort

Continuous Legacy Migration (legacy and blended products)

Continuous NDE Migration (SNPP, J1 and J2)

Continuous Non-NOAA Migration (H9, Oceansat-3, MTG L1, Metop-SG)

Key Accomplishments / Insights

- Service operational since May 2021. Migration projects to move on-prem algorithms to the Cloud are ongoing
 - 30 algorithms integrating into production (ops), generating 416 products
- Plans to deploy Continuous Improvement/Continuous Delivery (CI/CD) pipeline in FY24

Robust and scalable operational compute service, ready to meet GEO and LEO workflows

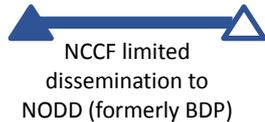


NCCF Dissemination and User Access Service

PI2	PI3	PI4	PI5	PI6	PI7	PI8	PI9	PI10	PI11	PI12	PI13	PI14	PI15	PI16	PI17	PI18	PI19	PI20	PI21	PI22	PI23	PI24	PI25	PI26	PI27	PI28	PI29
2021			2022			2023			2024			2025			2026			2027									



Flat Rate Egress Contract in place



Key Accomplishments / Insights

- Flat rate cloud egress contract in place as of July 1, 2022
- NCCF leveraging ESPC PDA distribution services initially
- Dissemination Minimum Viable Product (MVP) planned for Oct 2023 for Distribution with Fire Weather Storefront
- Demonstration project to set up a public S3 March 2023



Flat rate egress contract awarded July 1, 2022



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Enterprise PDA on NOAA/NESDIS

- PDA – Product Distribution and Access System
- All near real time distribution is done via PDA
 - GOES-16/18 data and products
 - JPSS products(S-NPP, NOAA-20, and Provisional NOAA-21)
 - Other products from currently supported missions



NOAA CLASS

- Comprehensive Large Array-Data Stewardship System (CLASS)
- NOAA's premiere online facility for the distribution of NOAA POES, GOES, and derived data
- Mainly for non-operational users to find and obtain the data
- GOES-16/18 AMV, S-NPP/NOAA-20 VPW, and Metop-B/C AVHRR Polar Winds are currently available on CLASS





Questions?

Thank You!

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